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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,046	11/24/2003	Michel Molinier	2003B114	6645

23455 7590 06/22/2006

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EXAMINER
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SINGH, PREM C

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/721;046

Applicant(s)

MOLINIER ET AL.

Examiner

Prem C. Singh

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 19-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- Paper No(s)/Mail Date : 6/9/05

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-18, drawn to process of removing alkenes and/or diolefins, classified in class 585, subclass 250.
- II. Claims 19-30, drawn to method of making catalyst, classified in class 502,

The inventions are distinct, each from the other because Inventions in Group I and Group II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06).

In the instant case, invention in Group I is conducting removal of alkenes and/or diolefins from hydrocarbon streams and the invention of Group II is making a catalyst. The inventions in Groups I and II have different modes of operation and effects.

During a telephone conversation with Attorney Andrew Griffis on 05-11-06 a provisional election was made with traverse to prosecute the invention of claims Group I, claims 1-18. Affirmation of this election must be made by applicant in replying to this

Art Unit: 1764

Office action. Claims 19-30 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 1764

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Didillon et al (US Patent 6,255,548) in view of Nakamura et al (US Patent 4,691,070).

Claim 1.

Didillon invention discloses, "A process for selective hydrogenation of unsaturated compounds such as acetylenic compounds or diolefins in the presence of a catalyst comprising at least one support, at least one metal from group VIII of the periodic table and at least one additional element M selected from the group formed by germanium, tin, lead, rhenium, gallium, indium, gold, silver, and thalium." (Abstract).

"The impregnated support is then filtered, optionally washed with distilled water, then dried and calcined in air." (Column 2, lines 57-59).

Didillon invention does not disclose contacting the support with at least one organic nitrogen-containing compound.

Nakamura invention discloses in Example 1, "The dry composite was reduced with an aqueous solution containing 10% by weight of hydrazine." (Column 3, lines 63-65).

It is to be noted that hydrazine ( $\text{N}_2\text{H}_4$ ) is an organic nitrogen-containing compound.

Art Unit: 1764

It would have been obvious to one skilled in the art at the time the invention was made to combine Didillon and Nakamura inventions and use hydrazine for reducing the prepared catalyst in Didillon invention.

Claims 2- 4, 10-11.

Nakamura invention discloses, "The aforementioned support was impregnated. The dry composite was reduced with hydrazine." (Column 3, lines 60-66).

Nakamura invention does not specifically mention that contacting with nitrogen-containing compound is effected during or before impregnation of the support.

Didillon invention discloses, "The invention is not limited to any specific impregnation procedure. When several solutions are used, intermediate drying and/or calcining steps can be carried out."

It would have been obvious to one skilled in the art to combine Didillon and Nakamura inventions and effect contacting with hydrazine during, before, or after impregnation of the support because this will not affect the catalyst properties.

Claims 5, 8, and 9.

Didillon invention discloses, "The catalyst of the invention includes: a) nickel, palladium, platinum, rhodium, ruthenium, and indium." (Column 2, lines 6-7).

Art Unit: 1764

Claims 6 and 7.

Didillon invention discloses, "b) at least one additional element M selected from germanium, tin, lead, rhenium, gallium, indium, silver, gold, and thalium." (Column 2, lines 12-14).

Claim 12.

Didillon invention discloses, "The support of the catalyst of the invention comprises at least one refractory oxide which is generally selected from oxides of magnesium, aluminum, silicon, titanium, zirconium, or thorium used alone or mixed together or mixed with oxides of other elements from the periodic table." (Column 1, lines 61-67).

Claims 13, 14, 15.

Nakamura invention mentions hydrazine as the organic nitrogen-containing compound, but does not specifically mention using amino acid, amino alcohol and 2-amino-2-methyl-1-propanol.

It would have been obvious to one skilled in the art to modify Nakamura invention and substitute hydrazine with one of the claimed compounds because they are functionally similar.

Art Unit: 1764

Claim 16.

Didillon invention discloses, "The impregnated support is calcined in air normally between 110°C and about 500°C." (Column 2, lines 57-60).

Claim 17.

Didillon invention discloses, "Typical feeds which can be treated are C<sub>2</sub>, C<sub>3</sub>, or C<sub>4</sub> steam cracking cuts, C<sub>3</sub>, C<sub>4</sub>, or C<sub>5</sub> cuts." (Column 3, lines 52-54).

Although Didillon does not specifically mention C<sub>2</sub> to C<sub>4</sub> olefins, it is known to those skilled in the art that C<sub>2</sub>-C<sub>4</sub> cracking cuts comprise olefins.

Claim 18.

Didillon invention discloses, "The feed is generally brought into contact with the catalyst of the present invention at a temperature in the range of 20 to 200°C and the pressure from atmospheric to 6 MPa." (Column 3, lines 54-59).

Didillon invention does not specifically mention about hydrogen to diolefin ratio.

Nakamura discloses, "Generally, the mole ratio of the diolefin to the molecular hydrogen falls in the range of 1/0.8 to 1.5." (Column 3, lines 17-19).

It would have been obvious to combine Didillon and Nakamura inventions and modify Didillon invention by using a mole ratio of hydrogen to diolefin as disclosed by Nakamura. This will help determine the hydrogen requirement in the process of hydrogenation.



**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

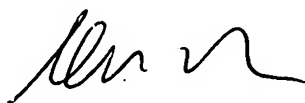
Brophy et al, US Patent 4,705,906.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prem C. Singh whose telephone number is 571-272-6381. The examiner can normally be reached on MF 6:30 AM-3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ps/051506



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